FIG. 1

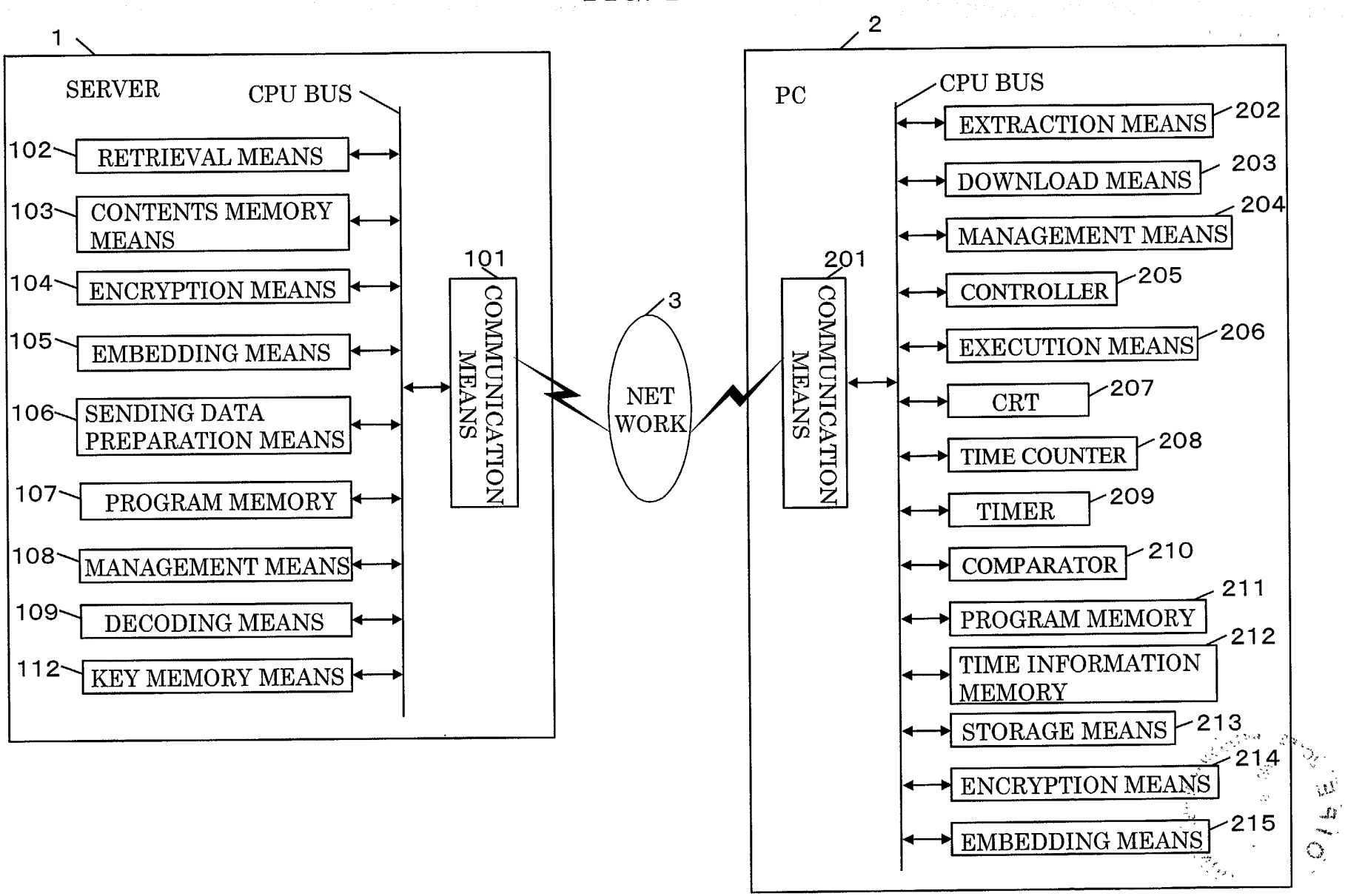

1
SERVER
CPU BUS
102
RETRIEVAL MEANS
103
CONTENTS MEMORY MEANS
104
ENCRYPTION MEANS
105
EMBEDDING MEANS
106
SENDING DATA PREPARATION MEANS
107
PROGRAM MEMORY
108
MANAGEMENT MEANS
109
DECODING MEANS
112
KEY MEMORY MEANS
101
COMMUNICATION MEANS
3
NET WORK
2
PC
CPU BUS
201
COMMUNICATION MEANS
202
EXTRACTION MEANS
203
DOWNLOAD MEANS
204
MANAGEMENT MEANS
205
CONTROLLER
206
EXECUTION MEANS
207
CRT
208
TIME COUNTER
209
TIMER
210
COMPARATOR
211
PROGRAM MEMORY
212
TIME INFORMATION MEMORY
213
STORAGE MEANS
214
ENCRYPTION MEANS
215
EMBEDDING MEANS

FIG. 2

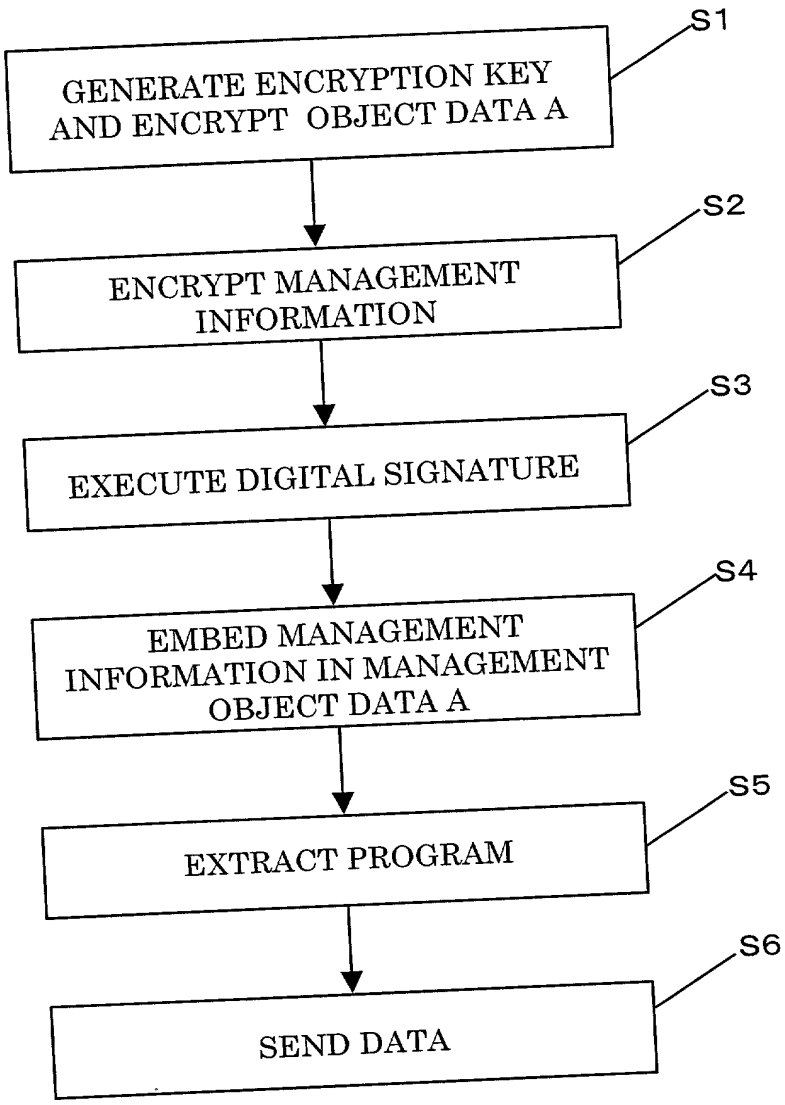

S1
GENERATE ENCRYPTION KEY AND ENCRYPT OBJECT DATA A
S2
ENCRYPT MANAGEMENT INFORMATION
S3
EXECUTE DIGITAL SIGNATURE
S4
EMBED MANAGEMENT INFORMATION IN MANAGEMENT OBJECT DATA A
S5
EXTRACT PROGRAM
S6
SEND DATA

FIG. 3

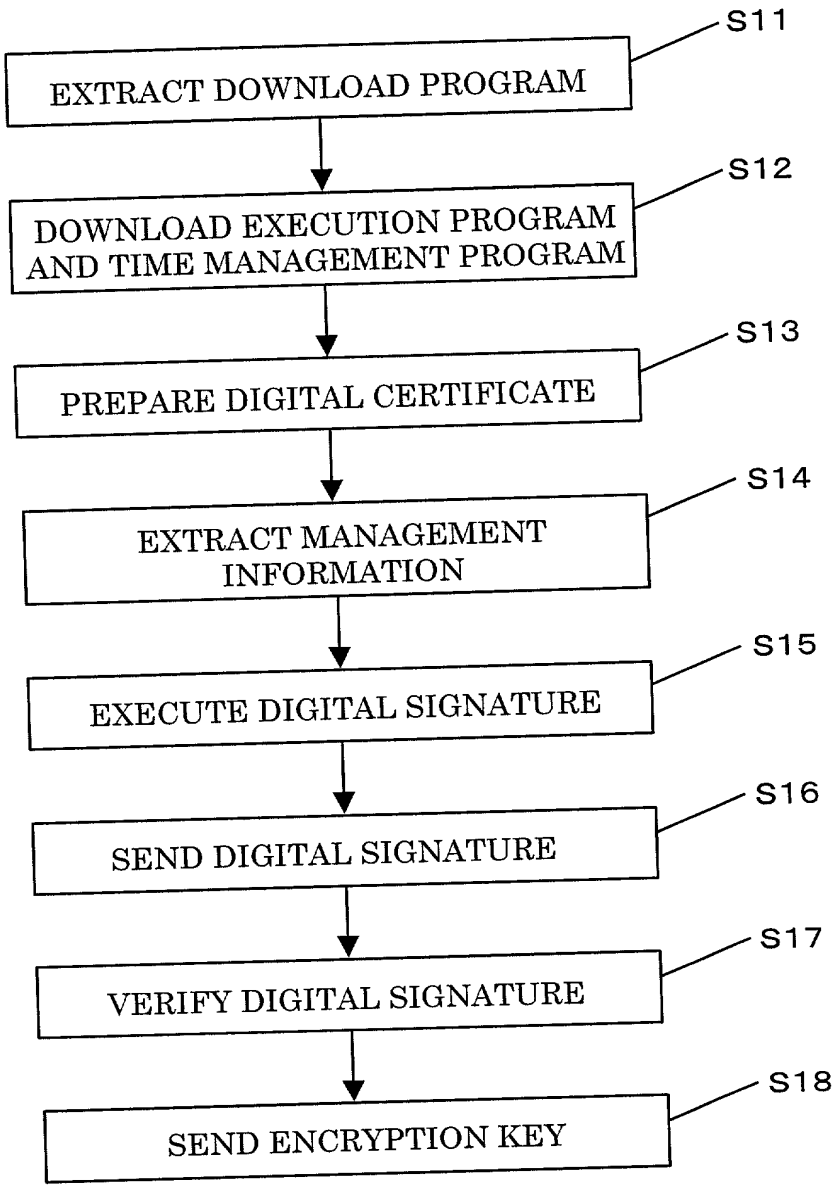

S11
EXTRACT DOWNLOAD PROGRAM
S12
DOWNLOAD EXECUTION PROGRAM AND TIME MANAGEMENT PROGRAM
S13
PREPARE DIGITAL CERTIFICATE
S14
EXTRACT MANAGEMENT INFORMATION
S15
EXECUTE DIGITAL SIGNATURE
S16
SEND DIGITAL SIGNATURE
S17
VERIFY DIGITAL SIGNATURE
S18
SEND ENCRYPTION KEY

FIG. 4

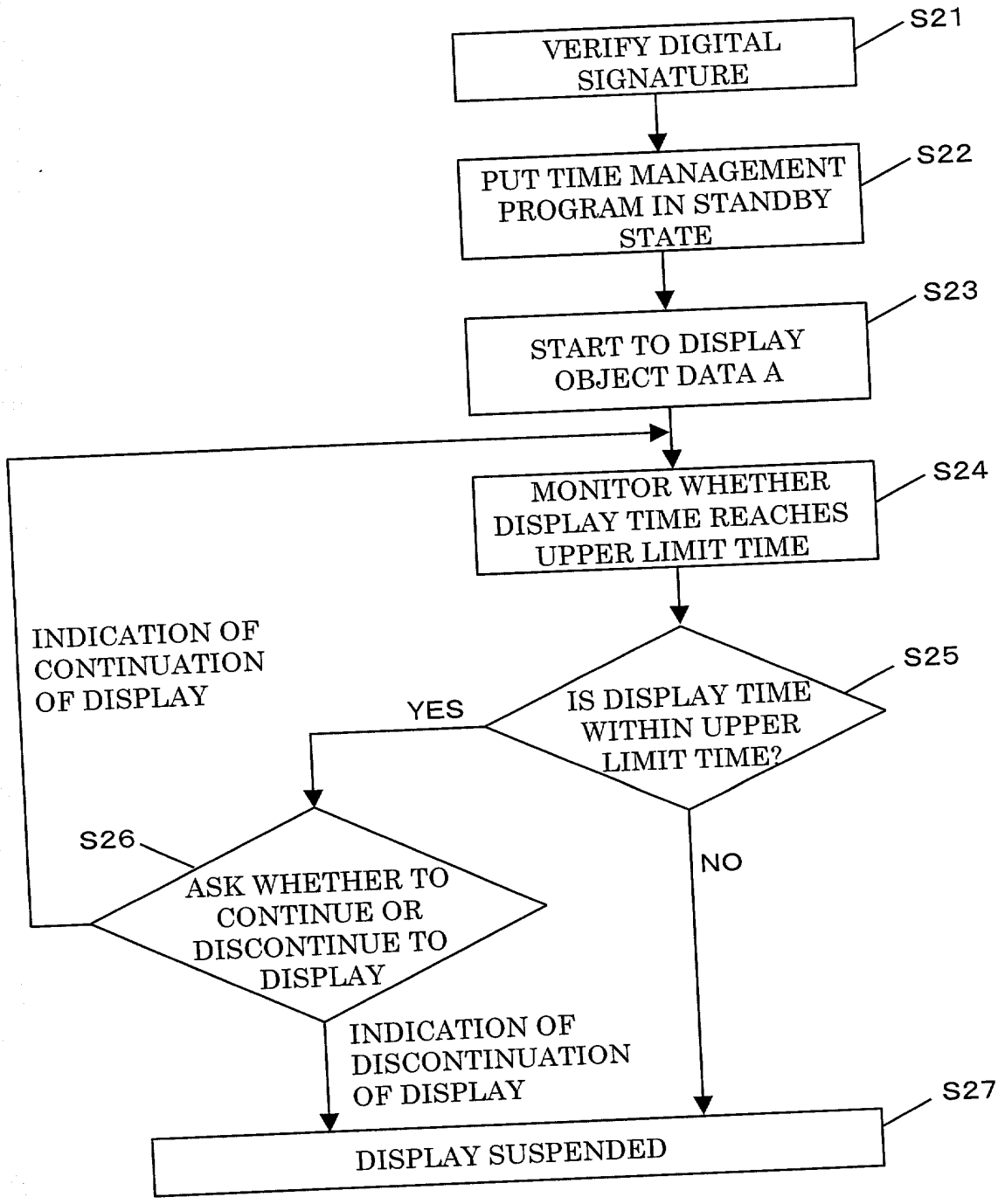

VERIFY DIGITAL SIGNATURE
S21
PUT TIME MANAGEMENT PROGRAM IN STANDBY STATE
S22
START TO DISPLAY OBJECT DATA A
S23
MONITOR WHETHER DISPLAY TIME REACHES UPPER LIMIT TIME
S24
IS DISPLAY TIME WITHIN UPPER LIMIT TIME?
S25
YES
NO
INDICATION OF CONTINUATION OF DISPLAY
ASK WHETHER TO CONTINUE OR DISCONTINUE TO DISPLAY
S26
INDICATION OF DISCONTINUATION OF DISPLAY
DISPLAY SUSPENDED
S27

FIG. 5

STRUCTURE OF SENDING DATA

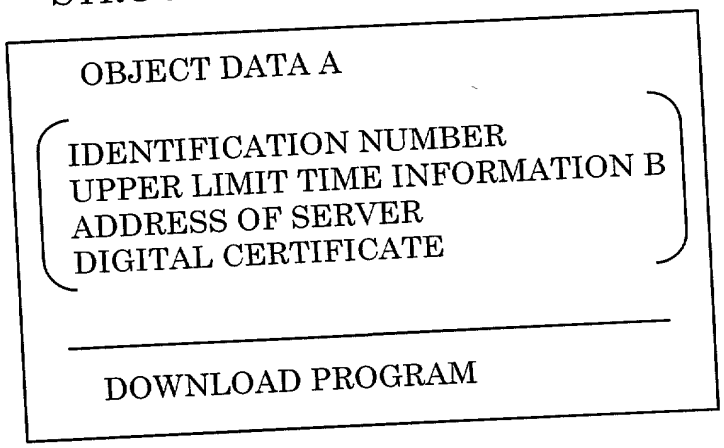


FIG. 6

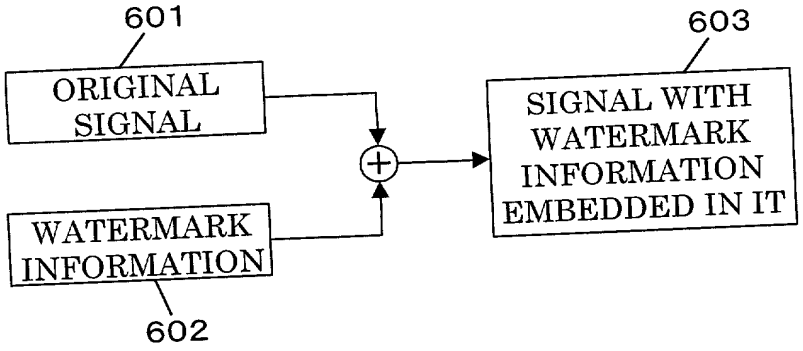

601
ORIGINAL SIGNAL
603
SIGNAL WITH WATERMARK INFORMATION EMBEDDED IN IT
WATERMARK INFORMATION
602

FIG. 7

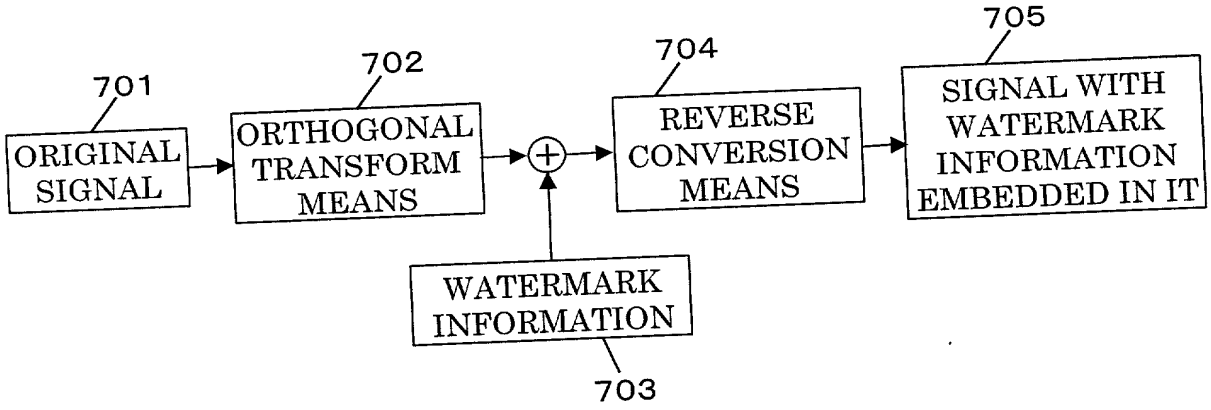

701
ORIGINAL SIGNAL
702
ORTHOGONAL TRANSFORM MEANS
704
REVERSE CONVERSION MEANS
705
SIGNAL WITH WATERMARK INFORMATION EMBEDDED IN IT
WATERMARK INFORMATION
703

FIG. 8

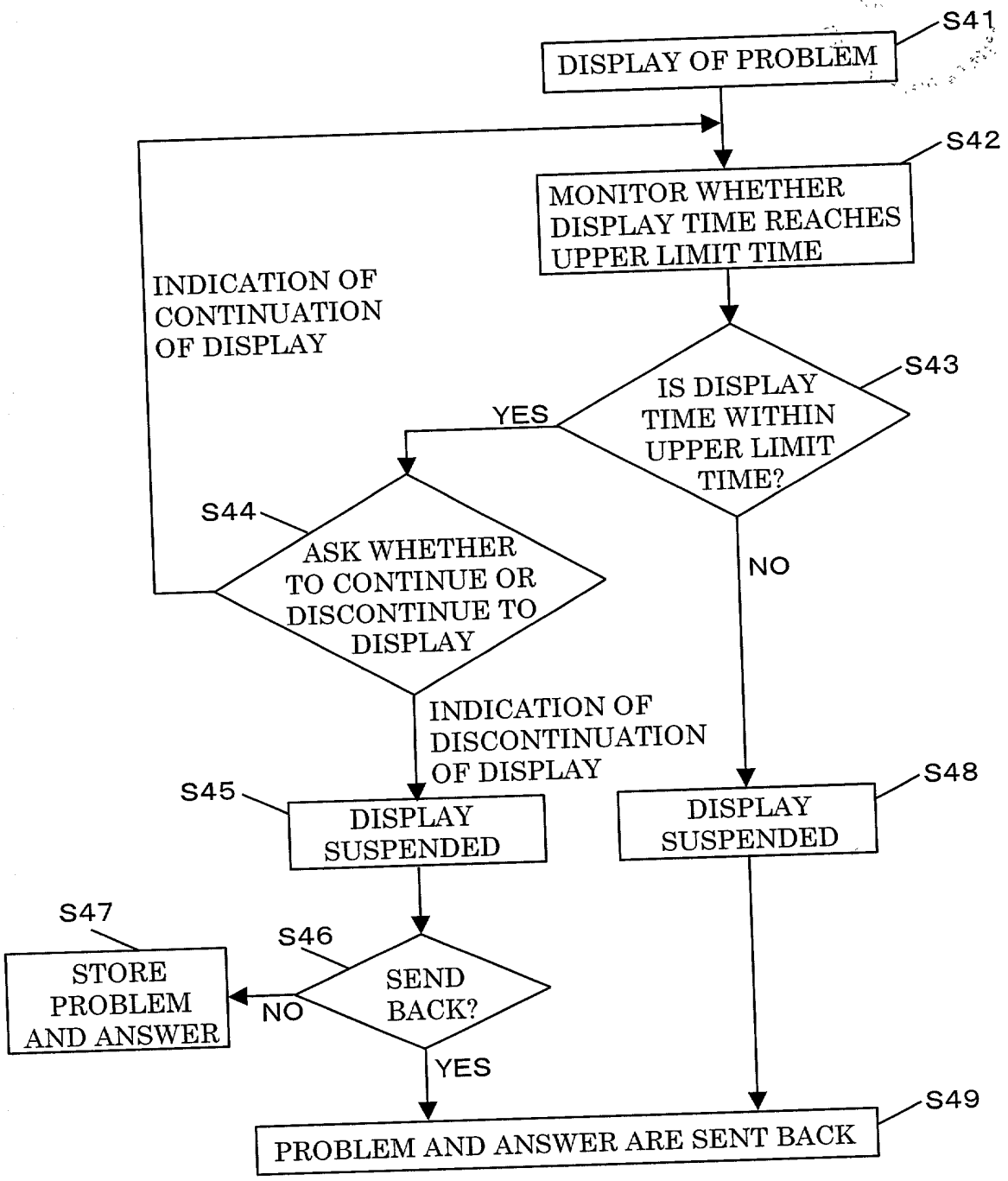

S41
DISPLAY OF PROBLEM
S42
MONITOR WHETHER DISPLAY TIME REACHES UPPER LIMIT TIME
INDICATION OF CONTINUATION OF DISPLAY
S43
IS DISPLAY TIME WITHIN UPPER LIMIT TIME?
YES
NO
S44
ASK WHETHER TO CONTINUE OR DISCONTINUE TO DISPLAY
INDICATION OF DISCONTINUATION OF DISPLAY
S45
DISPLAY SUSPENDED
S48
DISPLAY SUSPENDED
S47
STORE PROBLEM AND ANSWER
S46
SEND BACK?
NO
YES
S49
PROBLEM AND ANSWER ARE SENT BACK

FIG. 9

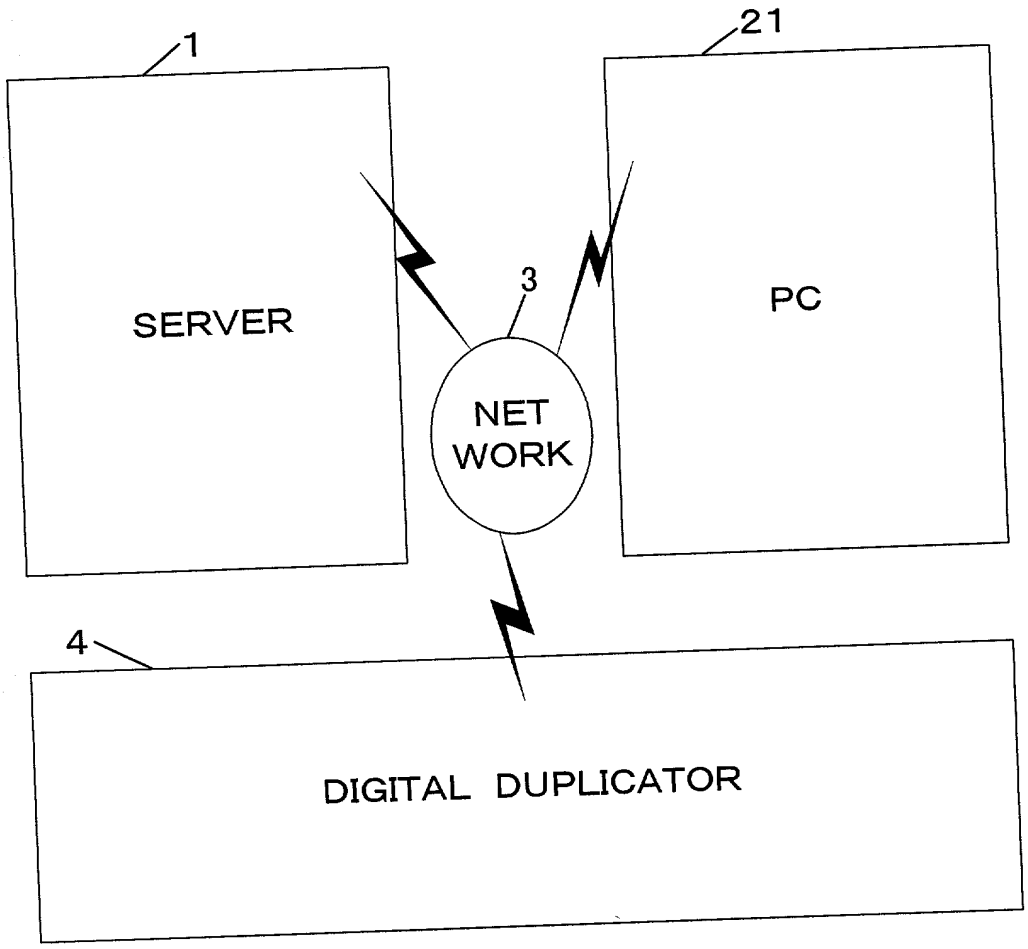


FIG. 10

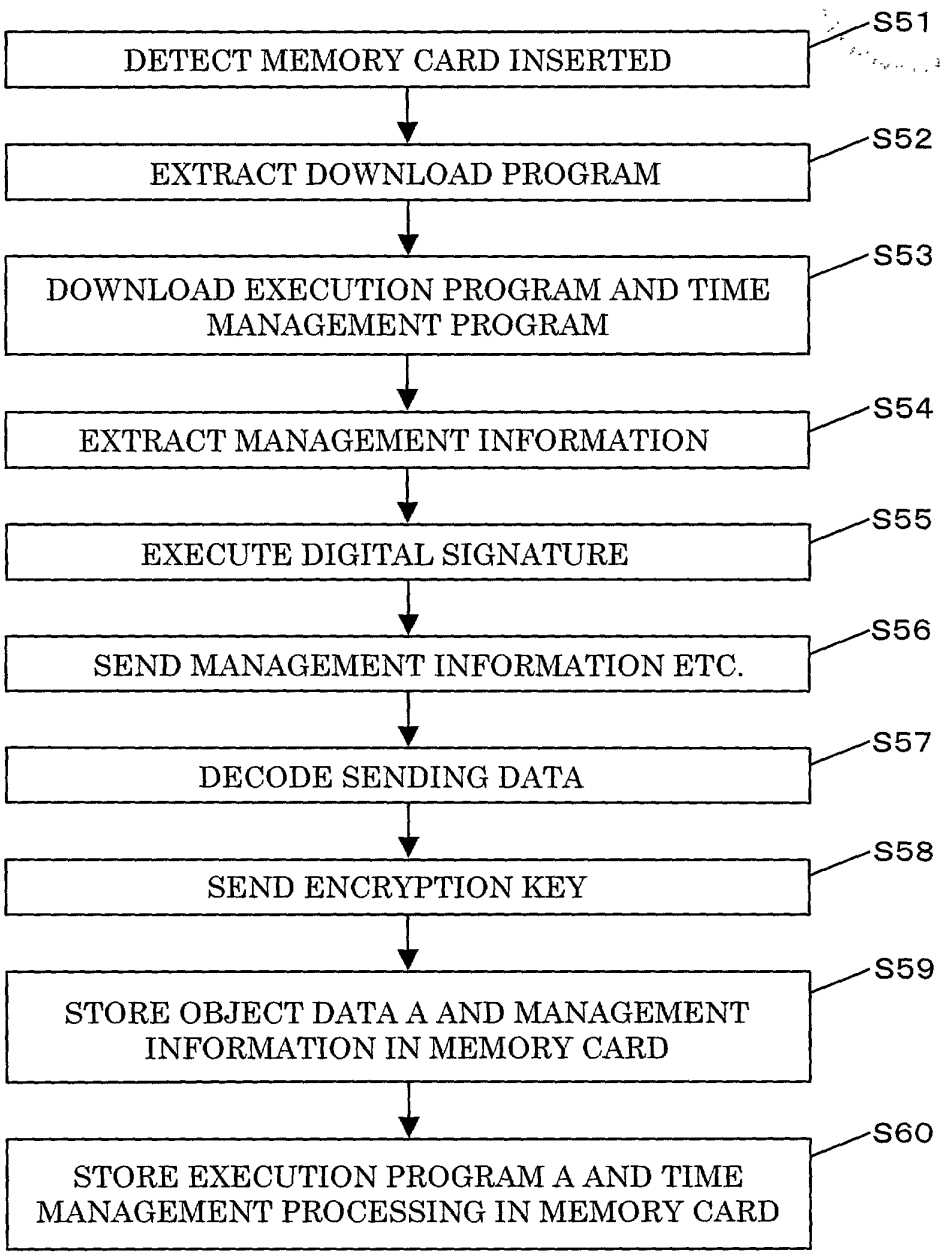

S51
DETECT MEMORY CARD INSERTED
S52
EXTRACT DOWNLOAD PROGRAM
S53
DOWNLOAD EXECUTION PROGRAM AND TIME MANAGEMENT PROGRAM
S54
EXTRACT MANAGEMENT INFORMATION
S55
EXECUTE DIGITAL SIGNATURE
S56
SEND MANAGEMENT INFORMATION ETC.
S57
DECODE SENDING DATA
S58
SEND ENCRYPTION KEY
S59
STORE OBJECT DATA A AND MANAGEMENT INFORMATION IN MEMORY CARD
S60
STORE EXECUTION PROGRAM A AND TIME MANAGEMENT PROCESSING IN MEMORY CARD

FIG. 11

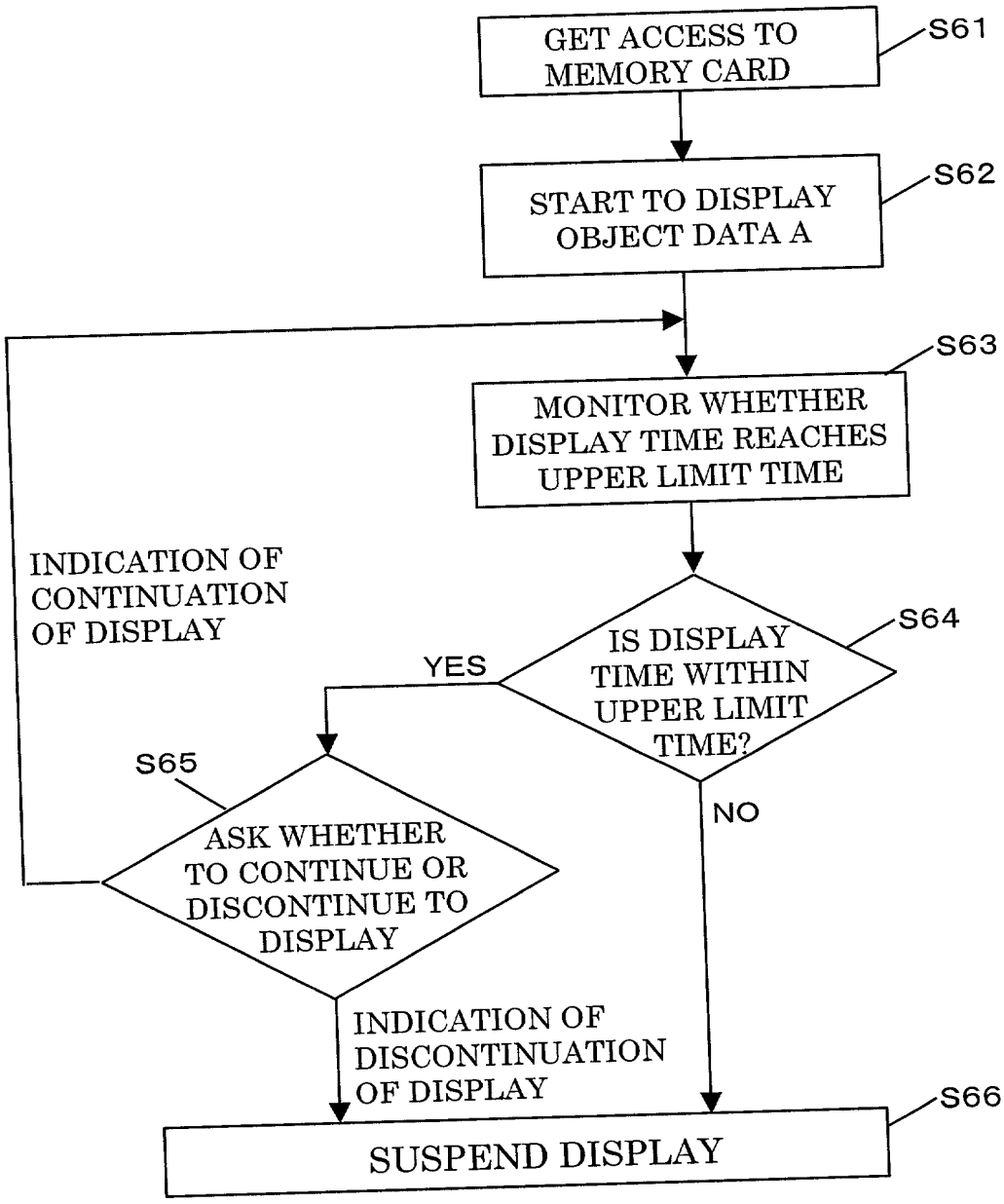

GET ACCESS TO MEMORY CARD
S61
START TO DISPLAY OBJECT DATA A
S62
MONITOR WHETHER DISPLAY TIME REACHES UPPER LIMIT TIME
S63
IS DISPLAY TIME WITHIN UPPER LIMIT TIME?
S64
YES
NO
INDICATION OF CONTINUATION OF DISPLAY
ASK WHETHER TO CONTINUE OR DISCONTINUE TO DISPLAY
S65
INDICATION OF DISCONTINUATION OF DISPLAY
SUSPEND DISPLAY
S66

FIG. 12

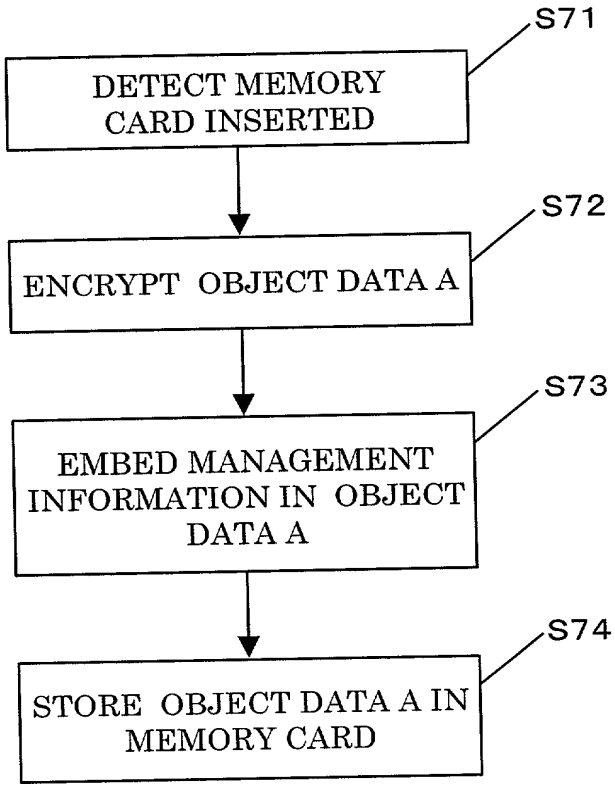

S71
DETECT MEMORY CARD INSERTED
S72
ENCRYPT OBJECT DATA A
S73
EMBED MANAGEMENT INFORMATION IN OBJECT DATA A
S74
STORE OBJECT DATA A IN MEMORY CARD

FIG. 13

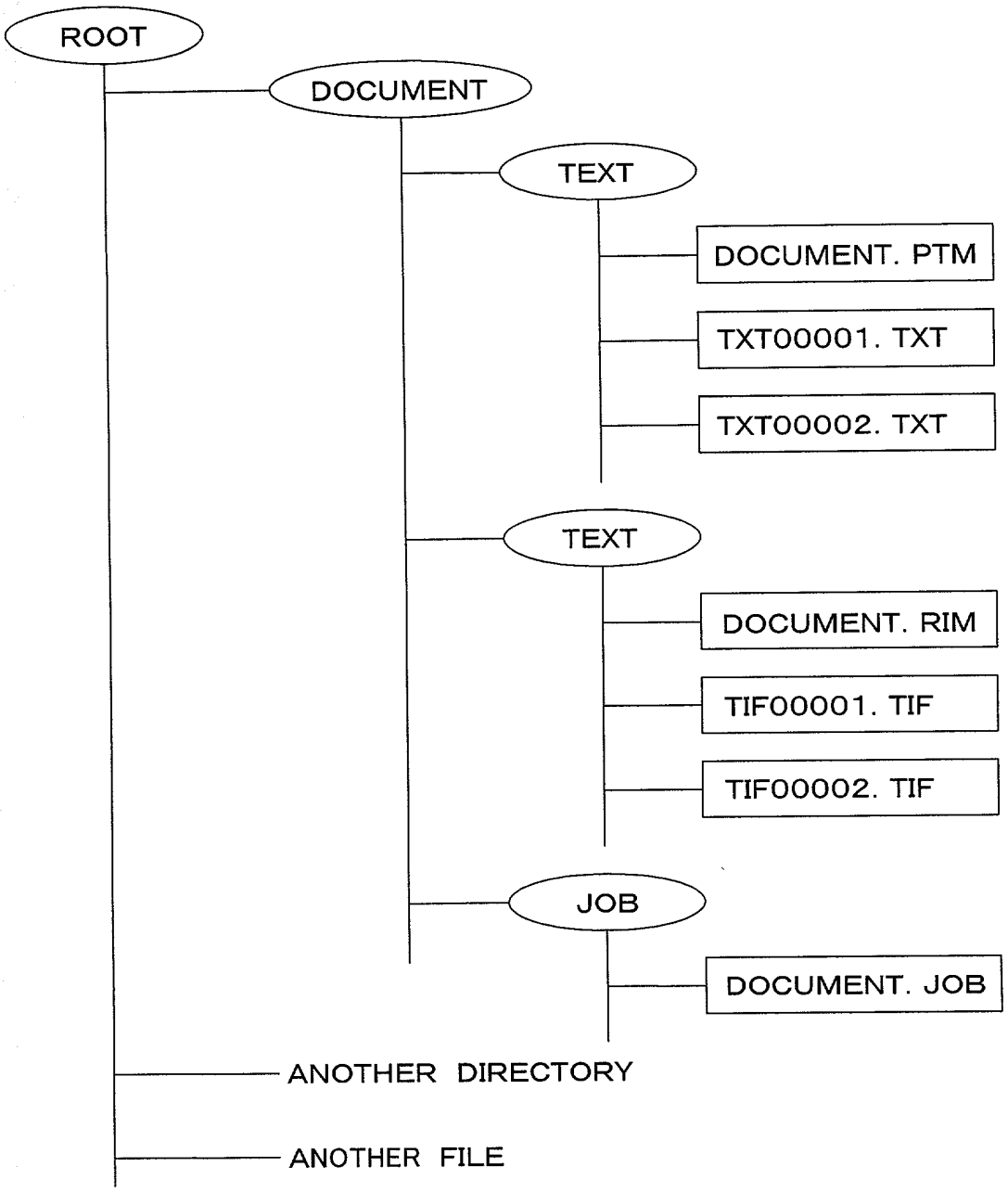

ROOT
DOCUMENT
TEXT
DOCUMENT. PTM
TXT00001. TXT
TXT00002. TXT
TEXT
DOCUMENT. RIM
TIF00001. TIF
TIF00002. TIF
JOB
DOCUMENT. JOB
ANOTHER DIRECTORY
ANOTHER FILE

FIG. 14

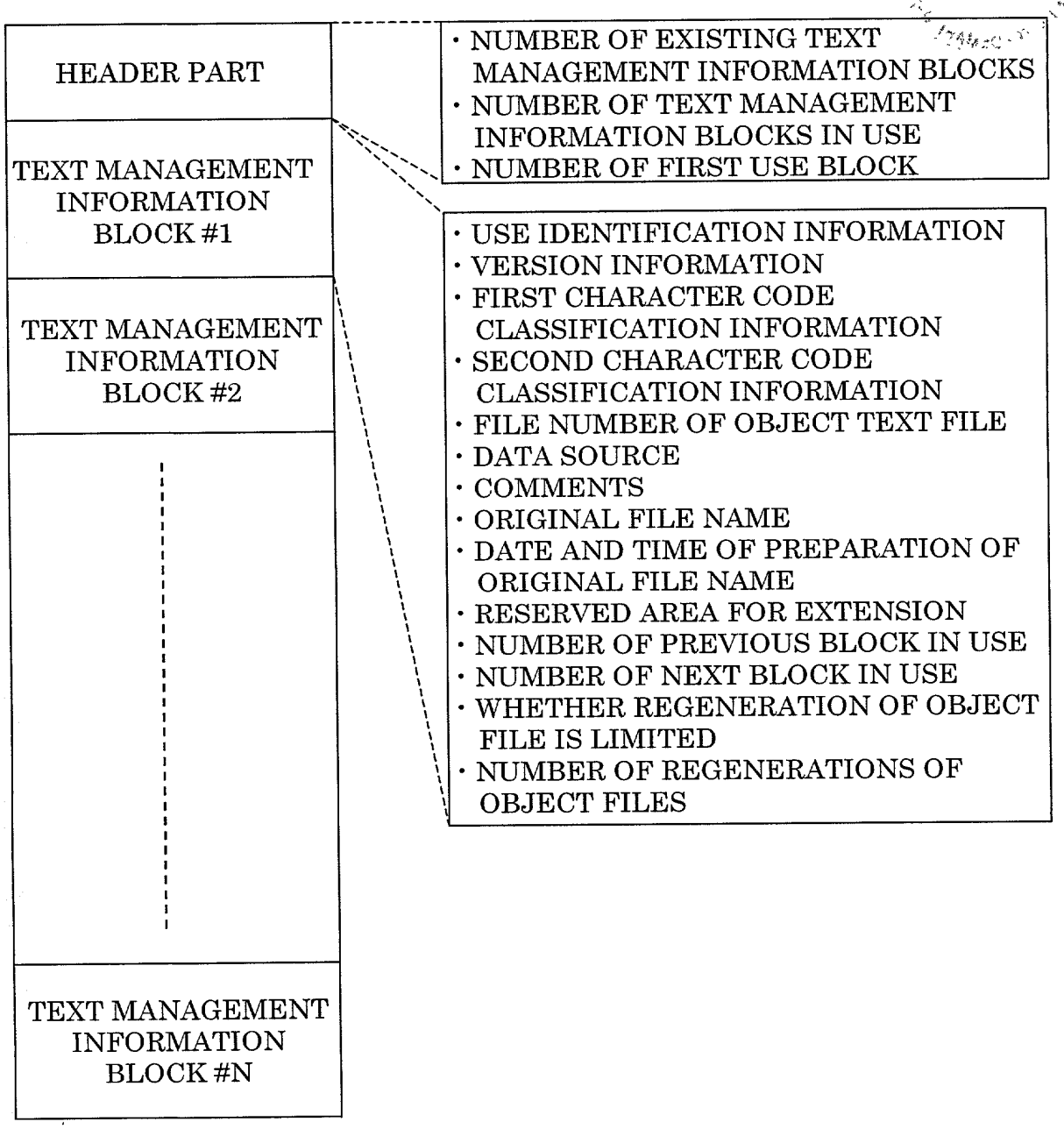

HEADER PART
TEXT MANAGEMENT INFORMATION BLOCK #1
TEXT MANAGEMENT INFORMATION BLOCK #2
TEXT MANAGEMENT INFORMATION BLOCK #N
· NUMBER OF EXISTING TEXT MANAGEMENT INFORMATION BLOCKS
· NUMBER OF TEXT MANAGEMENT INFORMATION BLOCKS IN USE
· NUMBER OF FIRST USE BLOCK
· USE IDENTIFICATION INFORMATION
· VERSION INFORMATION
· FIRST CHARACTER CODE CLASSIFICATION INFORMATION
· SECOND CHARACTER CODE CLASSIFICATION INFORMATION
· FILE NUMBER OF OBJECT TEXT FILE
· DATA SOURCE
· COMMENTS
· ORIGINAL FILE NAME
· DATE AND TIME OF PREPARATION OF ORIGINAL FILE NAME
· RESERVED AREA FOR EXTENSION
· NUMBER OF PREVIOUS BLOCK IN USE
· NUMBER OF NEXT BLOCK IN USE
· WHETHER REGENERATION OF OBJECT FILE IS LIMITED
· NUMBER OF REGENERATIONS OF OBJECT FILES

FIG. 15
A

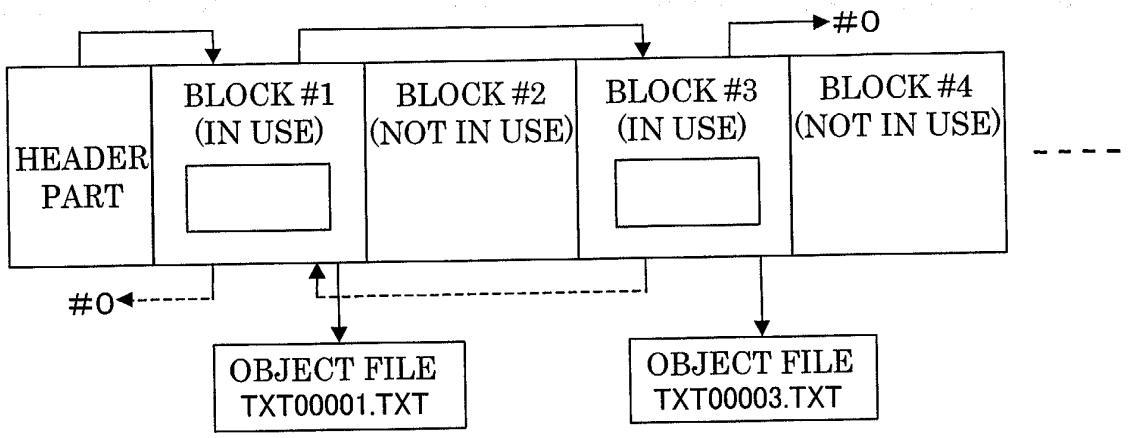


FIG. 15
B

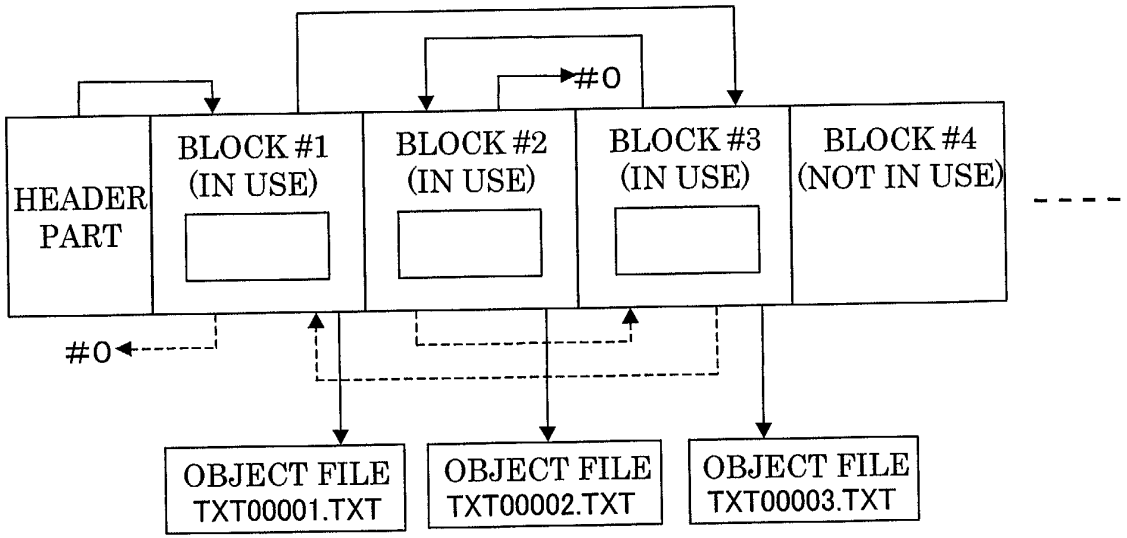


FIG. 16

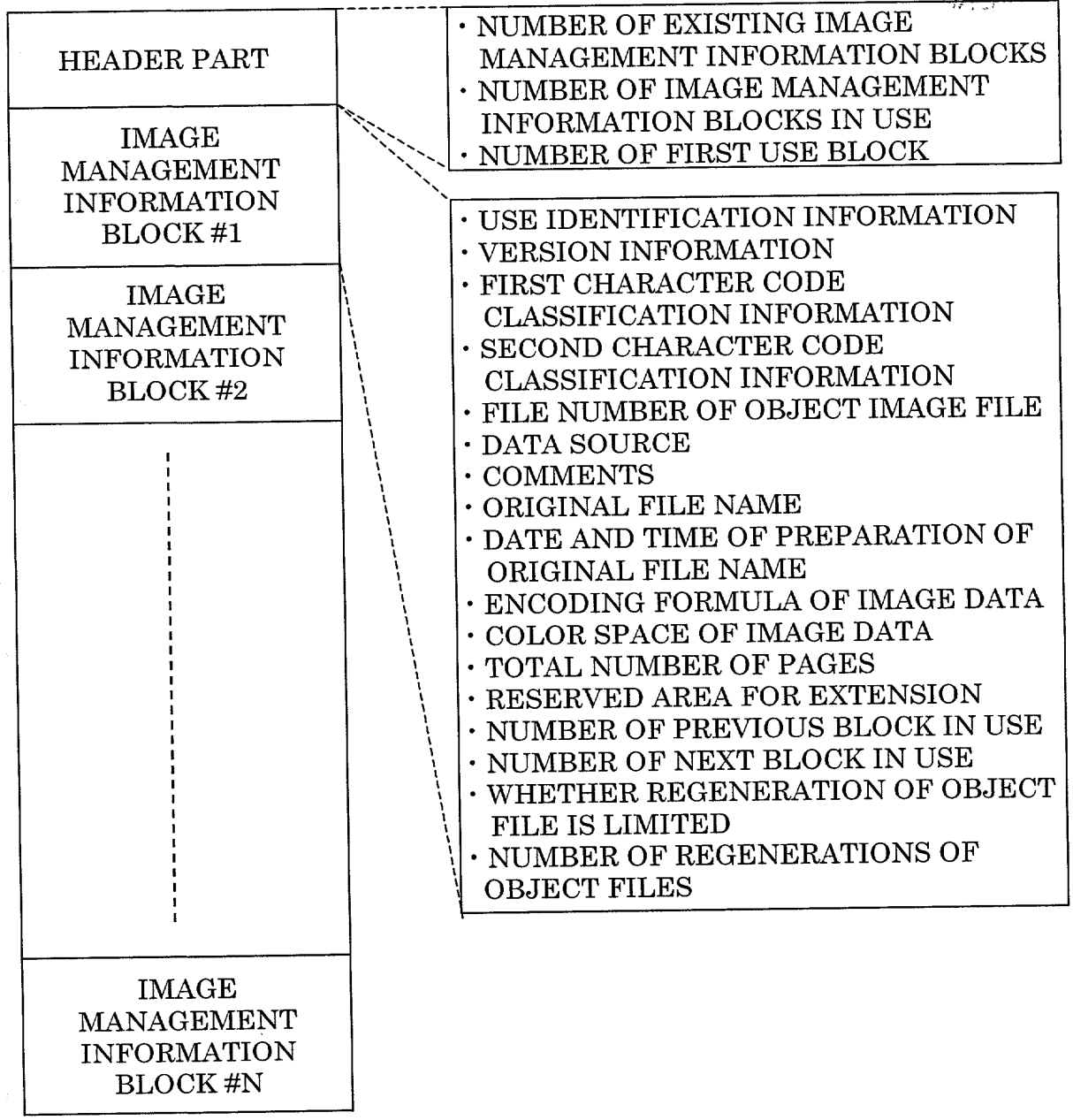

HEADER PART
IMAGE MANAGEMENT INFORMATION BLOCK #1
IMAGE MANAGEMENT INFORMATION BLOCK #2
IMAGE MANAGEMENT INFORMATION BLOCK #N
· NUMBER OF EXISTING IMAGE MANAGEMENT INFORMATION BLOCKS
· NUMBER OF IMAGE MANAGEMENT INFORMATION BLOCKS IN USE
· NUMBER OF FIRST USE BLOCK
· USE IDENTIFICATION INFORMATION
· VERSION INFORMATION
· FIRST CHARACTER CODE CLASSIFICATION INFORMATION
· SECOND CHARACTER CODE CLASSIFICATION INFORMATION
· FILE NUMBER OF OBJECT IMAGE FILE
· DATA SOURCE
· COMMENTS
· ORIGINAL FILE NAME
· DATE AND TIME OF PREPARATION OF ORIGINAL FILE NAME
· ENCODING FORMULA OF IMAGE DATA
· COLOR SPACE OF IMAGE DATA
· TOTAL NUMBER OF PAGES
· RESERVED AREA FOR EXTENSION
· NUMBER OF PREVIOUS BLOCK IN USE
· NUMBER OF NEXT BLOCK IN USE
· WHETHER REGENERATION OF OBJECT FILE IS LIMITED
· NUMBER OF REGENERATIONS OF OBJECT FILES

FIG. 17

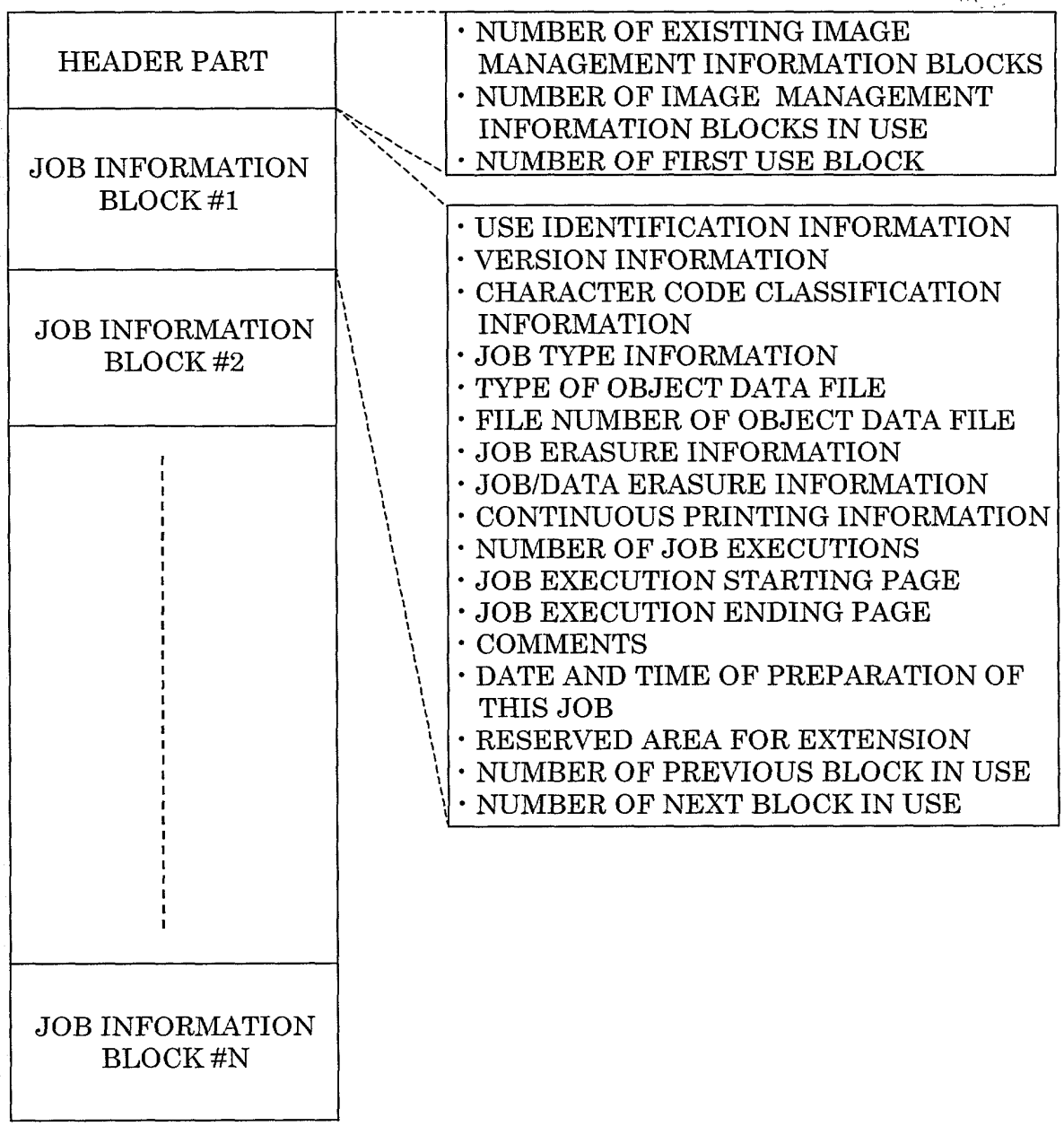

HEADER PART
JOB INFORMATION BLOCK #1
JOB INFORMATION BLOCK #2
JOB INFORMATION BLOCK #N
· NUMBER OF EXISTING IMAGE MANAGEMENT INFORMATION BLOCKS
· NUMBER OF IMAGE MANAGEMENT INFORMATION BLOCKS IN USE
· NUMBER OF FIRST USE BLOCK
· USE IDENTIFICATION INFORMATION
· VERSION INFORMATION
· CHARACTER CODE CLASSIFICATION INFORMATION
· JOB TYPE INFORMATION
· TYPE OF OBJECT DATA FILE
· FILE NUMBER OF OBJECT DATA FILE
· JOB ERASURE INFORMATION
· JOB/DATA ERASURE INFORMATION
· CONTINUOUS PRINTING INFORMATION
· NUMBER OF JOB EXECUTIONS
· JOB EXECUTION STARTING PAGE
· JOB EXECUTION ENDING PAGE
· COMMENTS
· DATE AND TIME OF PREPARATION OF THIS JOB
· RESERVED AREA FOR EXTENSION
· NUMBER OF PREVIOUS BLOCK IN USE
· NUMBER OF NEXT BLOCK IN USE

FIG. 18

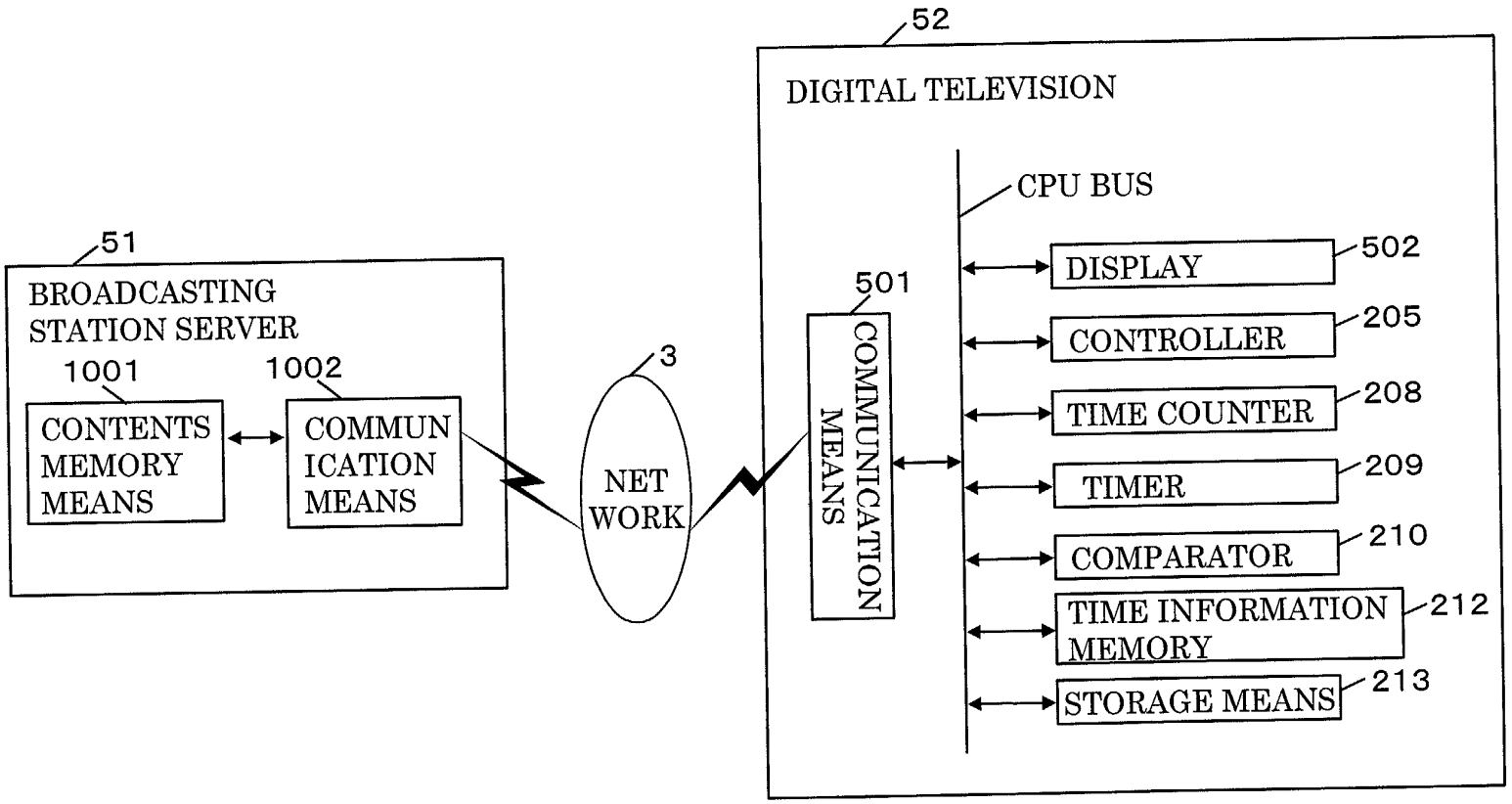

52
DIGITAL TELEVISION
CPU BUS
51
BROADCASTING STATION SERVER
1001
CONTENTS MEMORY MEANS
1002
COMMUNICATION MEANS
3
NET WORK
501
COMMUNICATION MEANS
DISPLAY
502
CONTROLLER
205
TIME COUNTER
208
TIMER
209
COMPARATOR
210
TIME INFORMATION MEMORY
212
STORAGE MEANS
213

FIG. 19

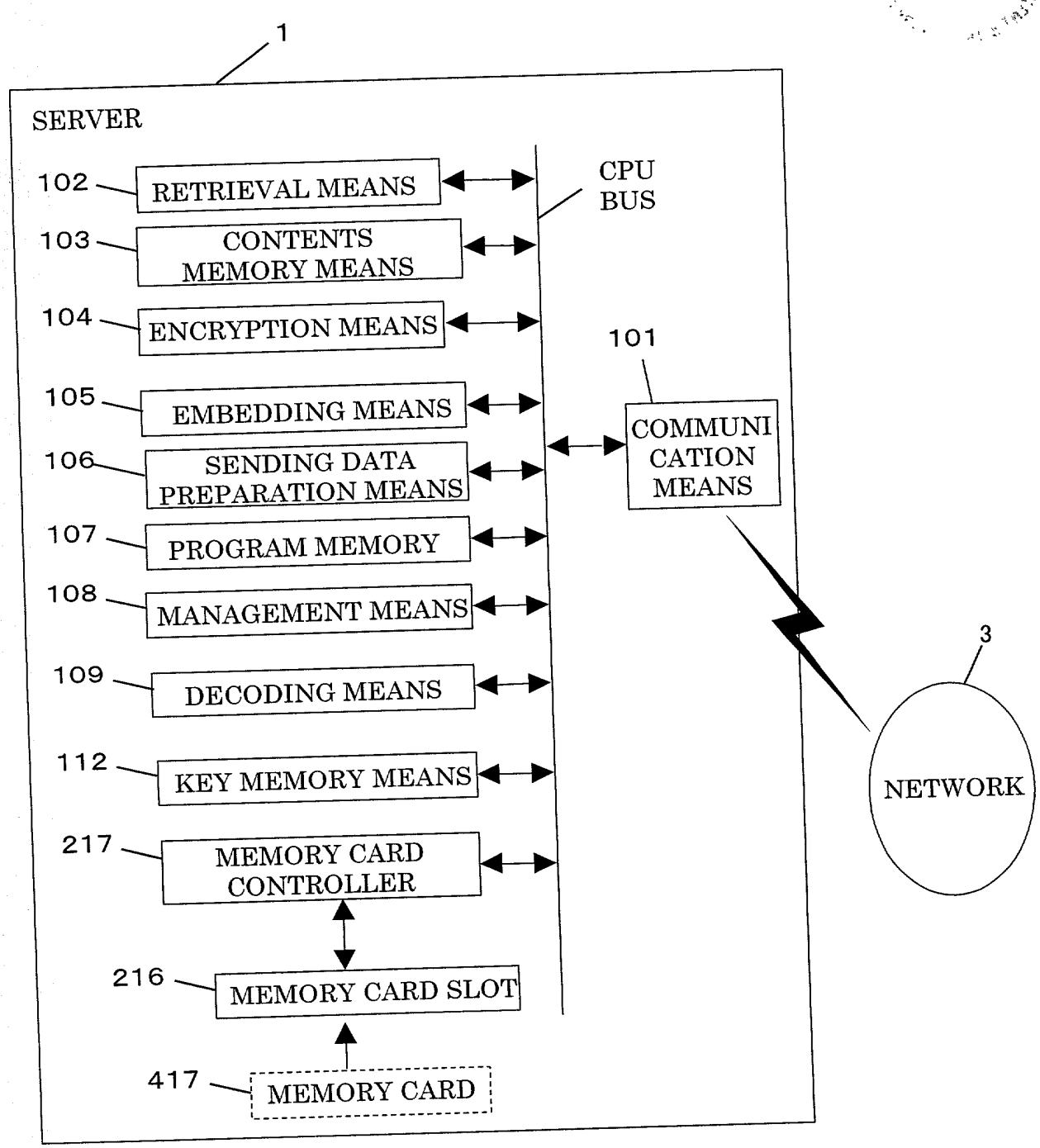

1
SERVER
102
RETRIEVAL MEANS
CPU BUS
103
CONTENTS MEMORY MEANS
104
ENCRYPTION MEANS
101
105
EMBEDDING MEANS
COMMUNICATION MEANS
106
SENDING DATA PREPARATION MEANS
107
PROGRAM MEMORY
108
MANAGEMENT MEANS
3
109
DECODING MEANS
NETWORK
112
KEY MEMORY MEANS
217
MEMORY CARD CONTROLLER
216
MEMORY CARD SLOT
417
MEMORY CARD

FIG. 20

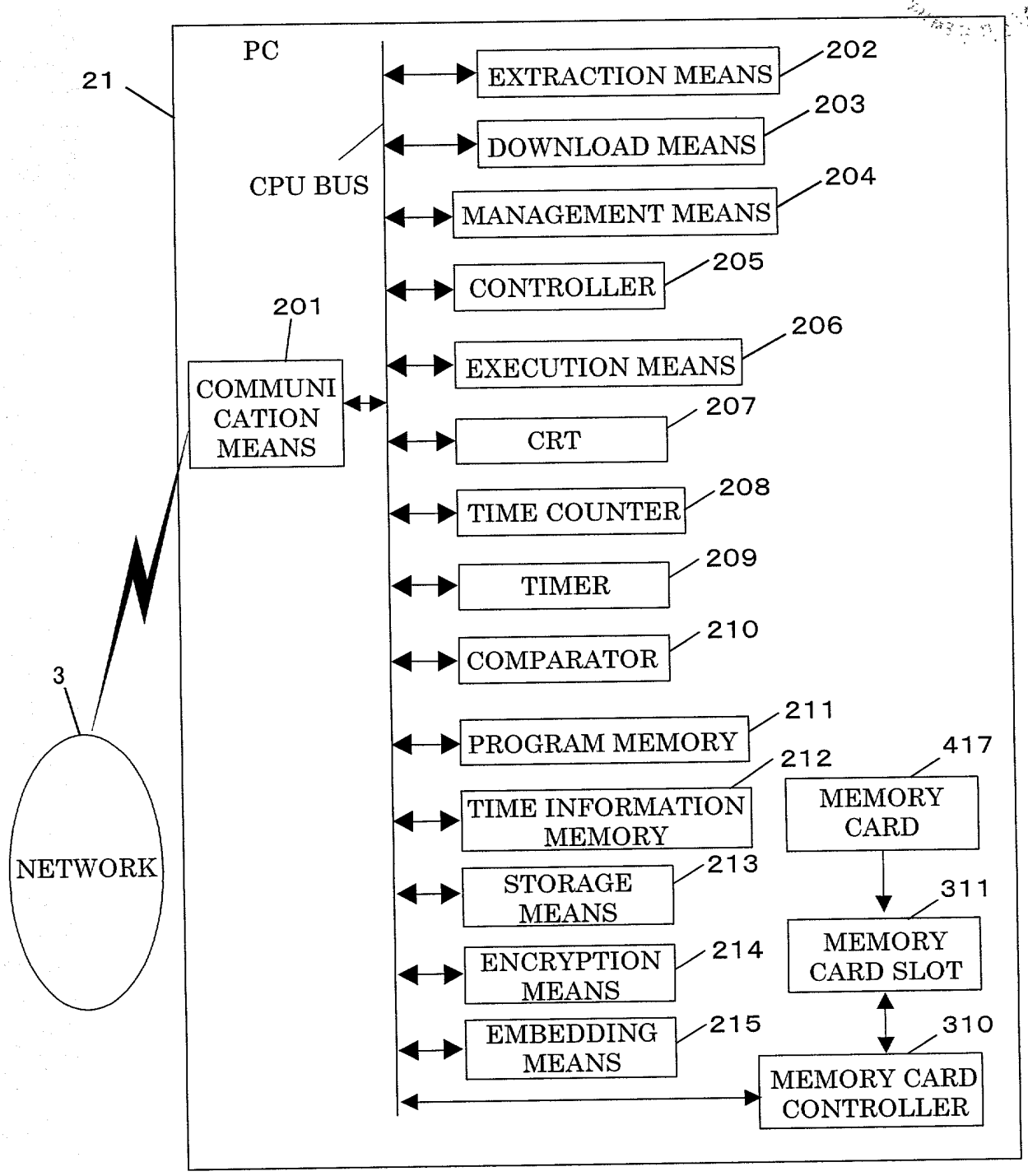
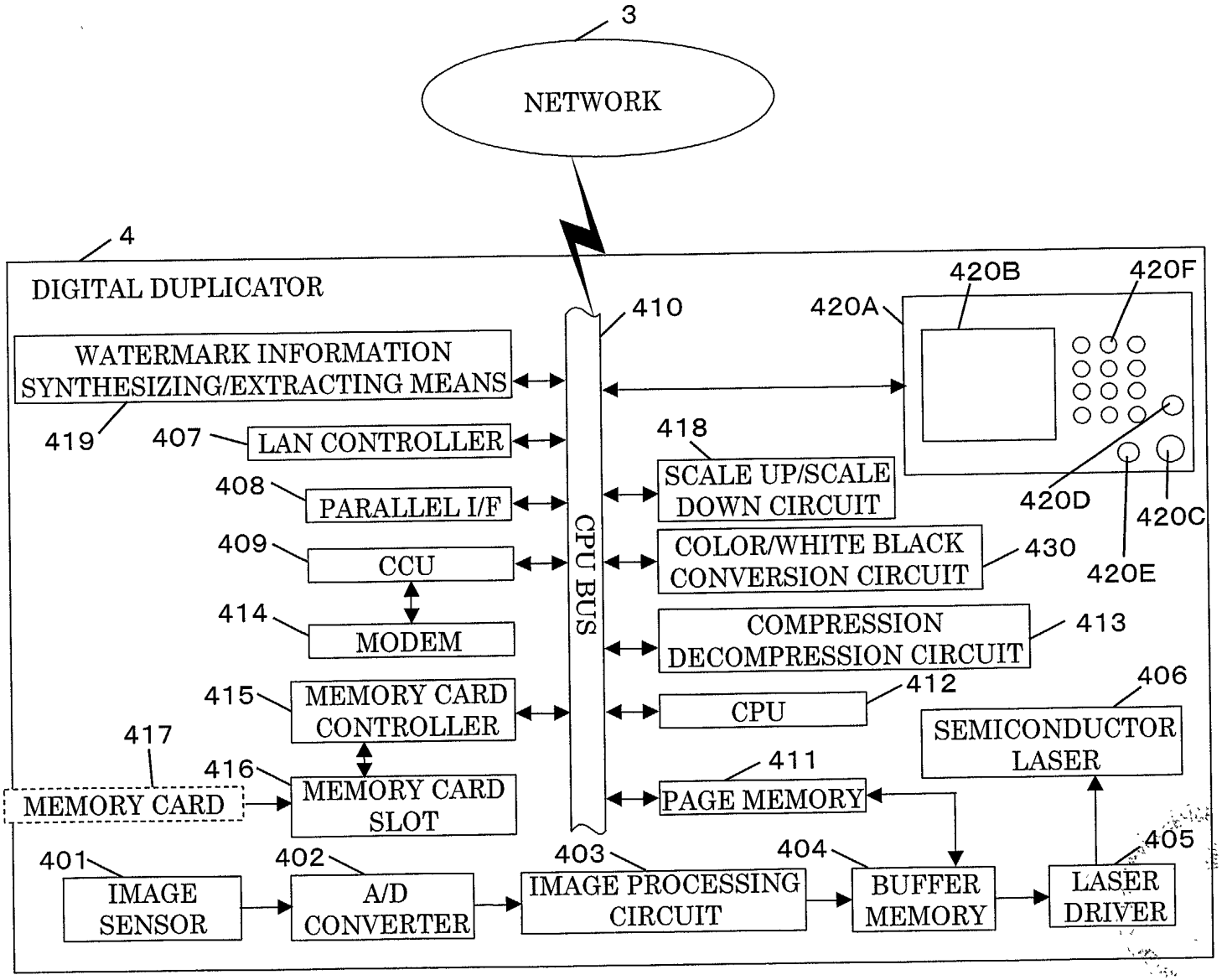

PC
21
CPU BUS
EXTRACTION MEANS
202
DOWNLOAD MEANS
203
MANAGEMENT MEANS
204
CONTROLLER
205
201
EXECUTION MEANS
206
COMMUNI CATION MEANS
CRT
207
TIME COUNTER
208
TIMER
209
COMPARATOR
210
3
PROGRAM MEMORY
211
417
MEMORY CARD
212
TIME INFORMATION MEMORY
NETWORK
STORAGE MEANS
213
311
MEMORY CARD SLOT
ENCRYPTION MEANS
214
EMBEDDING MEANS
215
310
MEMORY CARD CONTROLLER

FIG. 21


3
NETWORK
4
DIGITAL DUPLICATOR
410
CPU BUS
WATERMARK INFORMATION SYNTHESIZING/EXTRACTING MEANS
419
LAN CONTROLLER
407
PARALLEL I/F
408
CCU
409
MODEM
414
MEMORY CARD CONTROLLER
415
MEMORY CARD SLOT
416
MEMORY CARD
417
IMAGE SENSOR
401
A/D CONVERTER
402
IMAGE PROCESSING CIRCUIT
403
BUFFER MEMORY
404
LASER DRIVER
405
PAGE MEMORY
411
CPU
412
COMPRESSION DECOMPRESSION CIRCUIT
413
COLOR/WHITE BLACK CONVERSION CIRCUIT
430
SCALE UP/SCALE DOWN CIRCUIT
418
SEMICONDUCTOR LASER
406
420A
420B
420C
420D
420E
420F